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IS 5452 (2008): Dehydrated Garlic [FAD 9: Spices and Condiments]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
निर्जलीकृत लहसन की विशिष्टि
(दूसरा पुनरीक्षण)

Indian Standard
DEHYDRATED GARLIC — SPECIFICATION
(*Second Revision*)

ICS 67.220.10

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Spices and Condiments Sectional Committee had been approved by the Food and Agriculture Division Council.

Dehydrated vegetables are being increasingly used as they retain their culinary quality and palatability, and bring about economy in storage space and transport cost. Besides, there is optimum utilization of the product during the glut season, and saving of packaging material and tinplate.

Dehydrated garlic is also used extensively in overseas countries as a spice/condiment. Export of dehydrated garlic is being done by several manufacturers. This standard is intended to help in the essential quality control of the product so as to pave the way for its increased export and home consumption.

This standard was originally published in 1969 and first revised in 1994 to update the standard with the definition of garlic flake, referred standards and requirements of acid insoluble ash and anticaking elements. This revision is being brought about to update and align the requirements of dehydrated garlic with ISO standard on the subject, ISO 5560 : 1997 'Dehydrated garlic (*Allium sativum* L.) — Specification' and *Prevention of Food Adulteration Rules*, 1955. Due consideration has also been given to the *Standard of Weights & Measures (Packaged Commodities) Rules*, 1977. However, this standard is subject to restrictions imposed under both the rules, wherever applicable.

A scheme for labelling environment friendly products known as ECO-Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 20 February 1991 and Resolution No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO-Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional environment friendly (EF) requirements. The environment friendly requirements for dehydrated garlic, are, therefore, also included in this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

DEHYDRATED GARLIC — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for dehydrated garlic. It applies to various commercial forms including garlic flakes and powder.

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
460 (Part 1): 1985	Test sieves: Part 1 Wire cloth test sieves (<i>third revision</i>)
1797: 1985	Methods of test for spices and condiments (<i>second revision</i>)
2860: 1964	Methods of sampling and test for processed fruits and vegetables
5403: 1999	Method for yeast and mould count of foodstuffs (<i>first revision</i>)
5887 (Part 3): 1999	Methods for detection of bacteria responsible for food poisoning : Part 3 General guidance on methods for the detection of <i>salmonella</i> (<i>second revision</i>)
13145: 1993	Spices and condiments — Methods of sampling (<i>first revision</i>)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Dehydrated Garlic — Garlic from which bulk of moisture has been removed by dehydration under controlled conditions.

3.2 Extraneous Matter — Includes (a) pieces of other vegetables; (b) outer skin, outer root base, sediment (soil or sediment attached to garlic); and

(c) discoloured, scorched, toasted or baked particles.

3.3 Garlic Flakes — Product, free from skins, grit, etc, made by crushing garlic fingers in double rollers and drying.

3.4 Garlic Powder — Powder of which about 90 percent passes through 500- μ m IS Sieve and none is retained on a sieve of aperture 0.6 mm [see IS 460 (Part 1)].

4 REQUIREMENTS

4.1 Preparation

Dehydrated garlic shall be prepared from sound cloves of garlic (*Allium sativum* L.). Garlic shall be washed, peeled, trimmed, sliced or flaked properly. This processed garlic shall be dehydrated in a manner, which ensures effective preservation of the colour, flavour, texture and food value.

4.2 Description

The dehydrated garlic shall be of white to pale cream colour. The material, when in the form of powder, shall be free flowing and free from agglomerates.

4.3 Flavour

The dehydrated garlic shall have a marked and pungent odour characteristic of the variety used. It shall be free from off flavours, foreign odour, rancidity and mustiness.

4.4 Freedom from Moulds, Insects, etc

The dehydrated garlic shall be free from living insects and moulds, and practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected if necessary for abnormal vision) with such magnification as may be necessary. If the magnification exceeds X 10, this fact should be stated in the test report.

4.5 Extraneous Matter

It shall not exceed 0.5 percent by mass when determined in accordance with the method given in 4 of IS 1797.

4.6 Freedom from Preservatives, Artificial Colouring Matter and Flavouring Agents in Garlic Powder only

The dehydrated garlic shall be free from any preservatives, artificial colouring matter, bleaching substances or flavouring agents. However, anticaking agents listed below may be used to the maximum extent of 2.0 percent:

- a) Carbonates of calcium and magnesium;
- b) Phosphate of calcium and magnesium;
- c) Silicates of calcium, magnesium, aluminium or sodium or silicon dioxide; and
- d) Myristates, palmitates or stearates of aluminium, ammonium, calcium, potassium or sodium.

4.7 Rehydration

The dehydrated garlic, after steeping in water for 4h, shall reconstitute to form a product approximately to raw, freshly peeled, sliced garlic of good quality. When cooked by adding 250 ml of boiling one percent sodium chloride solution to 30 g of dehydrated garlic in a metal, preferably enamelled receptacle, and boiling for 15 min, shall reconstitute to a tender, crisp product free from toughness or mustiness and having the typical flavour, colour and odour of cooked garlic.

4.8 Chemical Requirements

The dehydrated garlic shall also comply with the requirements given in Table 1.

4.9 Additional Requirements for ECO-Mark

4.9.1 General Requirements

4.9.1.1 The product shall conform to the requirements prescribed under 4.1 to 4.8.

4.9.1.2 The manufacturer shall produce the consent clearance as per the provisions of *Water (PCP) Act, 1974*, *Water (PCP) Cess Act, 1977* and *Air (PCP) Act, 1981* along with the authorization, if required under *Environment (Protection) Act, 1986* and the

Rules made thereunder to the Bureau of Indian Standards while applying for the ECO-Mark and the product shall also be in accordance with the *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder. Additionally, FPO 1955 (Fruit Product Order) framed under *Essential Commodities Act, 1955*, *Standards of Weights and Measures Act, 1977* requirements wherever applicable has to be complied with.

4.9.1.3 The product/packaging may also display in brief the criteria based on which the product has been labelled environment friendly.

4.9.1.4 The material used for product/packing shall be recyclable or bio-degradable.

4.9.1.5 The date of manufacture and date of expiry shall be declared on the product/package by the manufacturer.

4.9.1.6 The product shall be microbiologically safe when tested as per IS 5403 and IS 5887 (Part 3) and shall be free from bacterial and fungal toxins.

4.9.1.7 The pesticide residues, if any in the product shall not exceed the limit as prescribed in *PFA Act, 1954* and the Rules made thereunder.

4.9.1.8 The product/package or leaflet accompanying it may display instructions of proper use, storage and transport (including refrigeration temperature compliance) so as to maximize the product performance, safety and minimize wastage.

4.9.2 Specific Requirements

4.9.2.1 The product shall not contain any of the heavy metal contaminants in excess of the quantities prescribed in Table 2.

5 PACKING

The dehydrated garlic shall be packed in clean and

Table 1 Chemical Requirements for Dehydrated Garlic
(Clause 4.8)

Sl No. (1)	Characteristic (2)	Requirement (3)	Methods of Test, Ref to (4)
i)	Moisture, percent by mass, <i>Max</i>	5	9 of IS 1797
ii)	Total ash, percent by mass, <i>Max</i>	5.5	6 of IS 1797
iii)	Acid-insoluble ash, percent by mass, <i>Max</i> (without any anticaking agents)	0.5 ¹⁾	8 of IS 1797
iv)	Cold water soluble extract on dry basis, percent by mass	Between 70.0 and 90.0	11 of IS 1797
v)	Volatile oil content on dry basis, percent by mass, <i>Min</i>	0.3	15 of IS 1797
vi)	<i>Salmonella</i> , in 25g	Absent	IS 5887 (Part 3)

¹⁾When anticaking agents are present in the dehydrated garlic powder, the maximum limit for acid insoluble ash, percent by mass shall be 2.5.

Table 2 Limits for Heavy Metals
(Clause 4.9.2.1)

Sl No.	Characteristic	Requirement	Methods of Test, Ref to Cl of IS 2860
(1)	(2)	(3)	(4)
i)	Arsenic, mg/kg, <i>Max</i>	1	13
ii)	Lead, mg/kg, <i>Max</i>	5	14
iii)	Copper, mg/kg, <i>Max</i>	30	15
iv)	Zinc, mg/kg, <i>Max</i>	19	16
v)	Tin, mg/kg, <i>Max</i>	250	17

sound containers made of material, which does not affect the garlic and protects it from the uptake of moisture.

6 MARKING

6.1 The following particulars shall be marked or labelled on each container:

- Name of the material, its commercial form and trade-name or brand name, if any;
- Name and address of the manufacturer or packer;
- Batch or Code number;
- Date of packing; net mass;
- Instruction for storage;
- Best before date (Month and Year to be given by the manufacturer); and
- Any other requirements as given under the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977* and *Prevention of Food Adulteration Act, 1955* and Rules.

6.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6.3 ECO-Mark

The product may also be marked with the ECO-Mark, the details of which may be obtained from the Bureau of Indian Standards.

7 SAMPLING

Representative samples for testing the conforming of the final product to this specification shall be drawn according to IS 13145.

Bureau of Indian Standards

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This Indian Standard has been developed from Doc: No. FAD 9 (1800).

Amendments Issued Since Publication

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